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Influenza Preparedness

Statement of

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Chairman and members of the Committee, I am Dr. Bruce Gellin, the Director of the National Vaccine Program Office of the Department of Health and Human Services. I am pleased to appear before you today to discuss pandemic influenza and the measures the Department of Health and Human Services is taking to prepare for the next pandemic. As my colleagues have already shared with you, the threat of a pandemic is now felt to be greater than it has been in decades. This is in large part because of the highly pathogenic bird flu, an influenza virus classified as H5N1, which is established and endemic in many different species of birds across Asia. Since we know that it is the nature of influenza viruses to evolve, we can expect that the H5N1 virus will do the same and that it is likely to continue to spread among a variety of birds and other animals, increasing the possibility that this virus will mix with a human virus and result in a novel influenza virus – one to which most humans have no immunity.

Since 1997, the H5N1 avian flu has continued to spread in animals throughout many countries in Asia and many scientists believe that it may be one mutation away from developing the ability to efficiently transmit from person to person. Of added concern is that a virus that was initially pathogenic in a few species of birds has expanded its reach And now affects a wide range of wild and domestic poultry, as well as a number of mammalian species including felines (cats and tigers) and humans.

Since last year 74 people, mostly young and otherwise healthy people, are known to have been infected with this virus and two out of three of them have died from this infection. What appears to be an increasing frequency of infections in family clusters, primarily associated with poultry farming, is also of concern. We are all keeping a watchful eye on

the current situation in Asia. Although we are concerned about the spread and behavior of the H5N1 virus, we also know that there are other influenza virus subtypes capable of emerging and leading to a pandemic. Therefore, I want to highlight that our pandemic preparedness and response efforts are both specific to the H5N1 virus and more general in approach to ensure that we are able to respond to the entire class of influenza viruses.

Since he arrived at HHS a few months ago, Secretary Leavitt has made pandemic influenza preparedness a priority area, including his intentions to update the Department's Draft Pandemic Influenza Preparedness and Response Plan – a cross-Departmental effort coordinated by my office. This Plan describes a coordinated strategy to prepare for and respond to an influenza pandemic. It also provides guidance to state and local health departments and the health care system to enhance planning and preparedness at all levels of government.

This plan was released for public comment last summer and, as with all preparedness planning, the specifics of this plan will continue to evolve. HHS will regularly revise the plan to respond to events such as new research, changing influenza virus strains, and discussions with a variety of stakeholders including industry. The next version of the Plan will address suggestions that we received during the comment period last fall. Finally, the updated plan will also conform to the recently revised World Health Organization framework – a feature that allows clearer communication with other nations regarding the specifics of preparedness and response at different stages of a developing pandemic. The next version of the plan will also incorporate many of the recommendations from an international pandemic influenza research conference held last

week and sponsored by HHS in conjunction with the World Health Organization and the Institute of Medicine. Next month Secretary Leavitt will also have an opportunity to present the summary of this international meeting as part of his discussions on pandemic influenza with world health leaders at the World Health Assembly in Geneva, Switzerland.

One of the most important tools we have for pandemic preparedness is vaccination. Vaccination is the primary means to prevent morbidity and mortality against influenza. Because a pandemic is by definition the introduction and spread of a novel strain, there are major implications for vaccine development. The majority of the population is likely to be susceptible to the virus and a two-dose regimen of a vaccine is likely to be needed to ensure the most effective protection. Perhaps most importantly from a preparedness perspective, the vaccine cannot be prepared years in advance and stockpiled, since the vaccine has to be tailored to match the emerged virus.

As highlighted by our experience with SARS, modern transportation is likely to rapidly accelerate the global spread of influenza. Thus, it should be assumed that during a pandemic, there will be worldwide demand for vaccine and that vaccine produced in other countries may not be available for U.S. use.

The domestic influenza vaccine manufacturing landscape is quite sparse. Currently, there is only one manufacturer, sanofi pasteur, with large-scale production capacity located in the United States. Last year's influenza vaccine shortage and the uncertainty of the 2005/2006 influenza vaccine supply, highlight a significant vulnerability, and therefore

the need for developing adequate surge capacity for domestically produced influenza vaccine.

Based on the importance of vaccines in a pandemic response, one of the critical elements of our Pandemic Influenza Preparedness and Response Plan is to encourage and ensure, where possible, that there will be sufficient domestic surge capacity for influenza vaccine production. This will require an ongoing and sustained commitment by HHS and strong partnerships with influenza vaccine manufacturers. We are grateful to the committee for recognizing this critical component in the response to this public health threat.

Overall, HHS will invest $439 million in targeted influenza activities in FY 2006. In my time today, I will focus on the Department's activities specific to advanced vaccine development and manufacturing. HHS received $50 million in FY2004 and $99 million in FY2005 for pandemic influenza vaccine preparedness. The President's Budget for FY2006 includes an additional $120 million to further strengthen this component of our overall pandemic influenza preparedness efforts. The intent of these resources in the near term is to build U.S. domestic vaccine production that is available year round. We are also encouraging the development of new technologies for producing influenza vaccines domestically, including cell culture approaches.

To maximize our near term influenza vaccine supply, it is important to understand that currently licensed influenza vaccines are produced in chicken eggs in a process that takes nearly nine months. Scientists must first select the virus strains that they anticipate will be the predominant strains circulating in the U.S. during the following influenza season.

These strains are then adapted to grow in eggs. Manufacturers inject each adapted virus strain separately into millions of fertilized eggs, which are subsequently incubated to allow the influenza virus to grow. These egg-grown viruses are then purified to make our annual influenza vaccine. Very large batches of these eggs – hundreds of thousands – are used in this process every day vaccine is being manufactured. However, because influenza vaccine is produced to meet the seasonal demand in the fall, production is also seasonal and eggs are not currently available year round. Because it is possible that a pandemic could occur at a time when manufacturers are not awaiting the delivery of eggs, part of these resources are being directed to ensure a year-round egg supply, thus providing the potential for year-round rather than seasonal influenza vaccine production. HHS issued a five-year contract to sanofi pasteur of Swiftwater, Pennsylvania on September 30, 2004 that provides secure and year round availability of eggs for influenza vaccine production. These additional eggs may be also used in the event of a seasonal influenza vaccine shortage for late season (September to November) vaccine production and for an influenza pandemic. This measure allows immediate initiation of vaccine production when a pandemic occurs. Additionally, this contract provides for annual pilot investigational lots of potential pandemic influenza vaccines. This will fill a gap in our development of avian influenza vaccines.

This summer, manufacturing of an H7N7 virus vaccine for clinical evaluation will commence. As Dr. Fauci mentioned, NIH has initiated studies of an H5N1 candidate vaccine. We also recognize that in the event of a pandemic, any technology that can speed up this production process will be vital to our ability to minimize the significant social, health, and economic disruptions that we can anticipate occurring. Therefore, the

Department believes that it is essential to expand, diversify, improve, and secure domestic production capacity.

For these reasons, Secretary Leavitt announced two weeks ago that the Department of Health and Human Services issued a five-year contract on March 31, 2005 to sanofi pasteur to develop and clinically evaluate their cell culture influenza vaccine technology with the goal of obtaining an FDA license for this vaccine approach. As importantly, this contract also establishes plans for creating domestic facilities with a capacity to manufacture 300 million doses of a monovalent pandemic vaccine using cell culture. Using a cell culture approach to producing influenza vaccine offers a number of benefits. Vaccine manufacturers can bypass the step needed to adapt the virus strains to grow in eggs. In addition, cell culture-based influenza vaccines will help meet surge capacity needs in the event of a pandemic or shortage. U.S. licensure and manufacture of influenza vaccines produced in cell culture will also provide security against risks associated with egg-based production, such as the potential for egg supplies to be contaminated by various poultry-based diseases.

These are important initial steps to strengthen our national influenza vaccine supply so that there is additional capacity and a range of production approaches available to respond to a pandemic. HHS has already announced our intentions to future accelerate this field. On March 17, 2005 we posted on FedBizOpps synopses of three additional areas where we believe strategic investments will further move the field and bring us closer to our goals.

Building on the efforts already in place, additional areas include the development of recombinant DNA-Based Pandemic Influenza Vaccines (similar to the technology used to

develop the current hepatitis B vaccine), improvements in the efficiency of influenza vaccine manufacturing processes so that more vaccine can be produced in a given time period, and the development of antigen-sparing, or so-call "dose-stretching" approaches that would allow a given amount of vaccine to be administered to more people.

Requests for proposals on these latter two aims will also be issued within the next several weeks. Funding for these contracts is expected to be incremental over the next three to five years.

The increase in the FY 2006 President's Budget request will support ongoing activities to enhance the Nation's influenza vaccine production capacity, which will allow us to respond better to yearly epidemics and to an influenza pandemic. Once a pandemic begins, it will be too late to accomplish many of the key activities required to minimize this toll. We are proud of the efforts that we have been allowed to undertake to date. While there is much to do, the US is leading the global effort to develop vaccines and vaccine technologies to meet the challenges of pandemic influenza preparedness.

Thank you for your attention to my remarks this morning – and more importantly to the attention that you have paid to this issue. I would be happy to answer any questions from the committee.